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Zx5 Series Loudspeaker Owner's Manual

Zx5-60
Zx5-90

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Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The asterisk within an equilateral triangle is intended to inform the user to necessary installation or removal instructions regarding equipment or hardware use relating to the system.

Zx5 Series Owner's Manual

Thank you for choosing the Electro-Voice® Zx5 series loudspeaker system. This system is the culmination of EV's 75 years of experience in transducer design. Please take time to consult this manual so that you can understand all the features built into your EV system and fully utilize all its performance capabilities.

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Safety First

When setting up, installing and using the Electro-Voice® Zx5 speaker system, there are a number of precautions that you should follow:

- When Electro-Voice® Zx5 speakers are used for portable applications in which they will be positioned directly on the floor, make sure that the floor or stage is solid and secure.
- Electro-Voice® Zx5 speakers include 1-3/8 inch stand mounts to allow mounting on tripod stands.

Make sure to:

- Check the specifications of the speaker stand to be certain it is capable of supporting the weight of the speaker.
- Check that the speaker stand is placed on a flat, stable surface and be sure to fully extend the legs of the stand. Do not try to make the stand "taller" and compromise its structural integrity.
- Route cables and position the stand so that performers, production crew and audience members will not trip over the stand or cables and pull the speaker system over. Secure cables with wire ties or tape whenever possible.
- Do not attempt to suspend more than one speaker on a stand designed for a single speaker
- Unless you are confident that you can safely handle lifting the weight of the speaker onto the stand, ask another person to help you place it.
- If you intend to hang or fly the Zx5 system, only do so safely with the correct hardware and accessories.

WARNING: *Suspending any object is potentially dangerous and should only be attempted by individuals who have a thorough knowledge of the techniques and regulations of rigging objects overhead. Electro-Voice® strongly recommends that Zx5 speakers be suspended taking into account all current national, federal, state and local regulations. It is the responsibility of the installer to ensure that Zx5 speakers are safely installed in accordance with all such regulations. If Zx5 speakers are suspended, Electro-Voice® strongly recommends that the system be inspected at least once a year. If any sign of weakness or damage is detected, remedial action should be taken immediately.* There are data sheets for each EV Suspension and Array Kit that should also be consulted prior to suspending speakers.

- Electro-Voice® does not recommend use of Zx5 speakers outdoors without protection from rain or in high moisture environments.

- Electro-Voice® Zx5 loudspeakers are easily capable of generating sound pressure levels sufficient to cause permanent hearing damage to anyone within normal coverage distance. Caution should be taken to avoid prolonged exposure to sound pressure levels exceeding 90 dB.

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Description

The Electro-Voice® Zx5 is a unique, lightweight package of pro audio performance, versatility and aesthetics. You won't find a speaker system available on the market that offers the unbelievable sound, incredible flexibility and tremendous output capability of the Zx5 anywhere near it's size and weight.

System Features - Zx5

- Full-face grille for a clean, professional look.
- DVX3150 15" woofer with 500 watts continuous power handling.
- ND2 2" voice coil, 1" exit neodymium compression driver.
- Two models: 60° x 60° or 90° x 50° coverage patterns.
- Adjustable monitor angle built into enclosure.
- Integral rigging points and inserts for multiple flying options.
- Full line of accessories for any installation.
- Passive and biamp selectable.

System Coverage - Zx5

Coverage Patterns and Applications

Zx5-60	60° x 60° coverage for long-throw and cluster applications
Zx5-90	90° x 50° for wider coverage or shorter distances

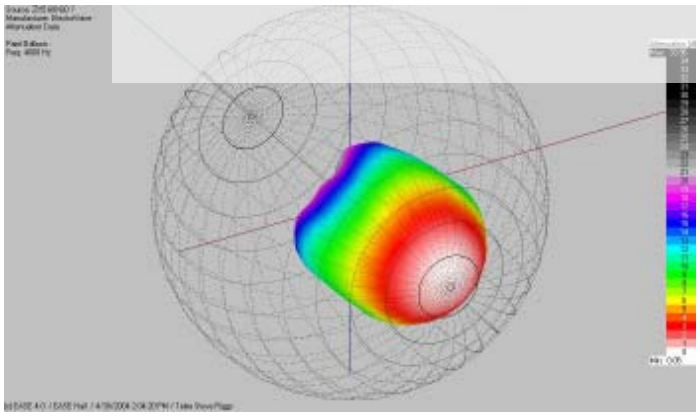

Figure 1a:
3D EASE Directivity Balloon, Zx5-60, 60° x 60° Coverage

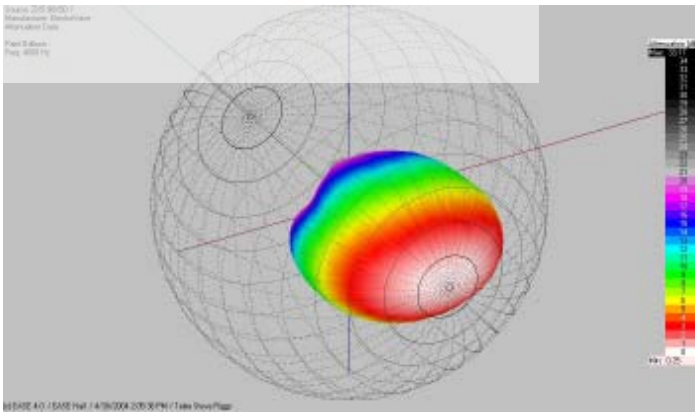

Figure 1b:
3D EASE Directivity Balloon, Zx5-90, 90° x 50° Coverage

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Suspending Zx5 Speaker Systems

Zx5 enclosures have 5 steel anchor points internally mounted on the top, bottom, and rear. Single stud fittings can be attached to these anchor plates and used as suspension points. Each of these anchor plates also has a M8 thread to accept rated forged M8 shoulder eyebolts. In addition to these points there are five additional M8 threaded points; two on the handle side, and three on the rear. These points can be used for suspending Zx5s vertically, horizontally, individually, in clusters, or to attach to EV mounting brackets. Working load limits for the Zx5 and fittings are shown in Figure 2.

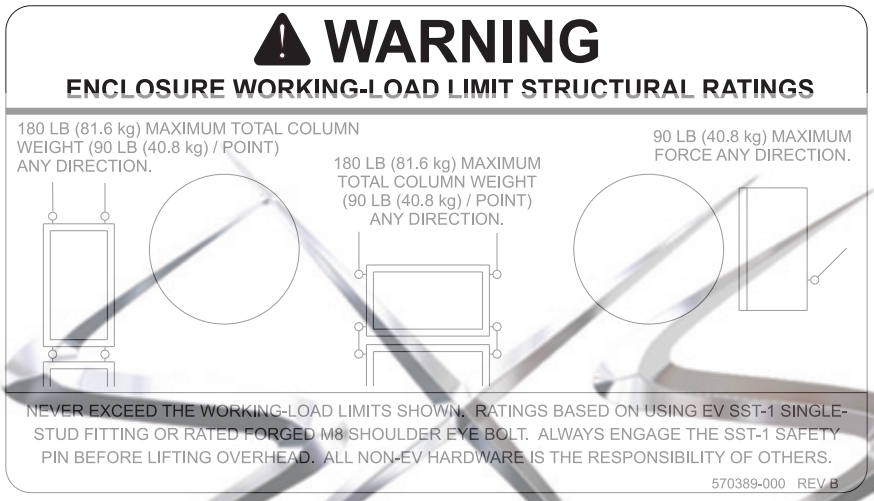
WARNING
ENCLOSURE WORKING-LOAD LIMIT STRUCTURAL RATINGS
180 LB (81.6 kg) MAXIMUM TOTAL COLUMN WEIGHT (90 LB (40.8 kg) / POINT) ANY DIRECTION.
180 LB (81.6 kg) MAXIMUM TOTAL COLUMN WEIGHT (90 LB (40.8 kg) / POINT) ANY DIRECTION.
90 LB (40.8 kg) MAXIMUM FORCE ANY DIRECTION.
NEVER EXCEED THE WORKING-LOAD LIMITS SHOWN. RATINGS BASED ON USING EV SST-1 SINGLE-STUD FITTING OR RATED FORGED M8 SHOULDER EYE BOLT. ALWAYS ENGAGE THE SST-1 SAFETY PIN BEFORE LIFTING OVERHEAD. ALL NON-EV HARDWARE IS THE RESPONSIBILITY OF OTHERS.
570389-000 REV B

Figure 2:
Working Load-Limit Rating of Zx5 Speaker System

Prior to each use, inspect the grid assembly or suspension point(s) and associated hardware for any cracks, deformations, broken welds, corrosion, missing or damaged components which could reduce the grid assembly or suspension point(s) strength. Replace any damaged hardware. Never exceed the limitations or maximum recommended load intended for grid assembly design or suspension point(s). As an added safety measure, it is suggested that the user install a second suspension point back to the grid (or building structural supports). This redundant safety point should have as little slack as possible (less than one inch is preferable).

Prior to each use, inspect the loudspeaker enclosures for any cracks, deformations, missing or damaged components, which could reduce enclosure strength. Inspect the bracket assembly on the enclosures for any cracks, deformations, missing or loose screws which could reduce the flying hardware strength. Replace any loudspeaker systems that are damaged or missing hardware. Never exceed the limitations or maximum recommended load for the Zx5 systems.

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Zx5 M8 Suspension Points

Metric (M8) inserts are equipped on the top and bottom of the enclosure, around the handle, and on the back of the enclosure for a total of 10 points. The inserts can be used to attach forged eyebolts or rigging brackets.

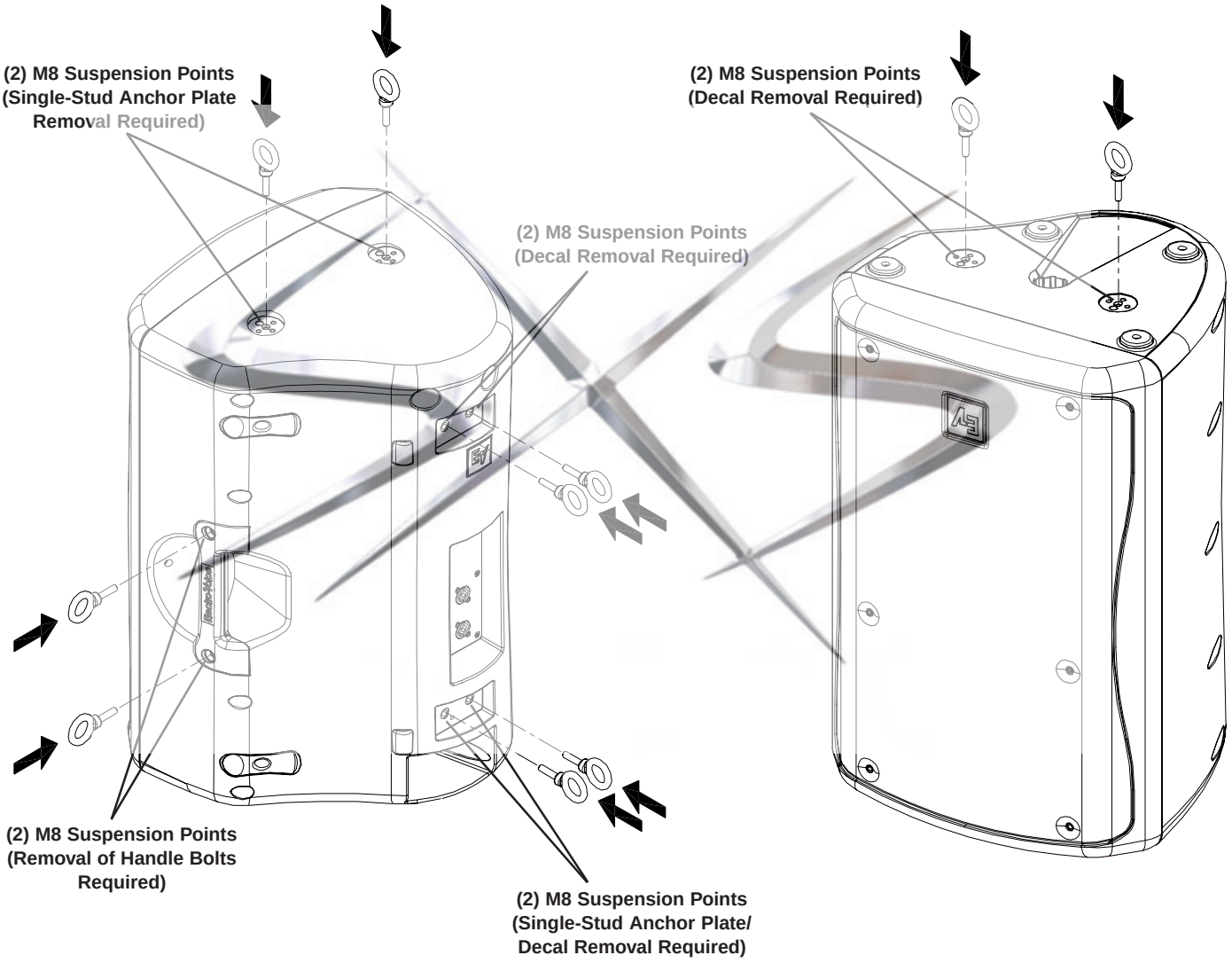

Figure 3a:
Zx5 M8 Suspension Points (Top, Handle, Rear)

Figure 3b:
Zx5 M8 Suspension Points (Bottom)

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Suspending the Zx5 using optional Electro-Voice Single-Stud Rigging Kits

The Zx5 is shipped with three single-stud anchor plates for rigging with single-stud rigging. There are two more locations on the bottom to mount single-stud anchor plates for flying the Zx5 upside-down or horizontally. All of these locations can facilitate M8 Eyebolts if desired as well.

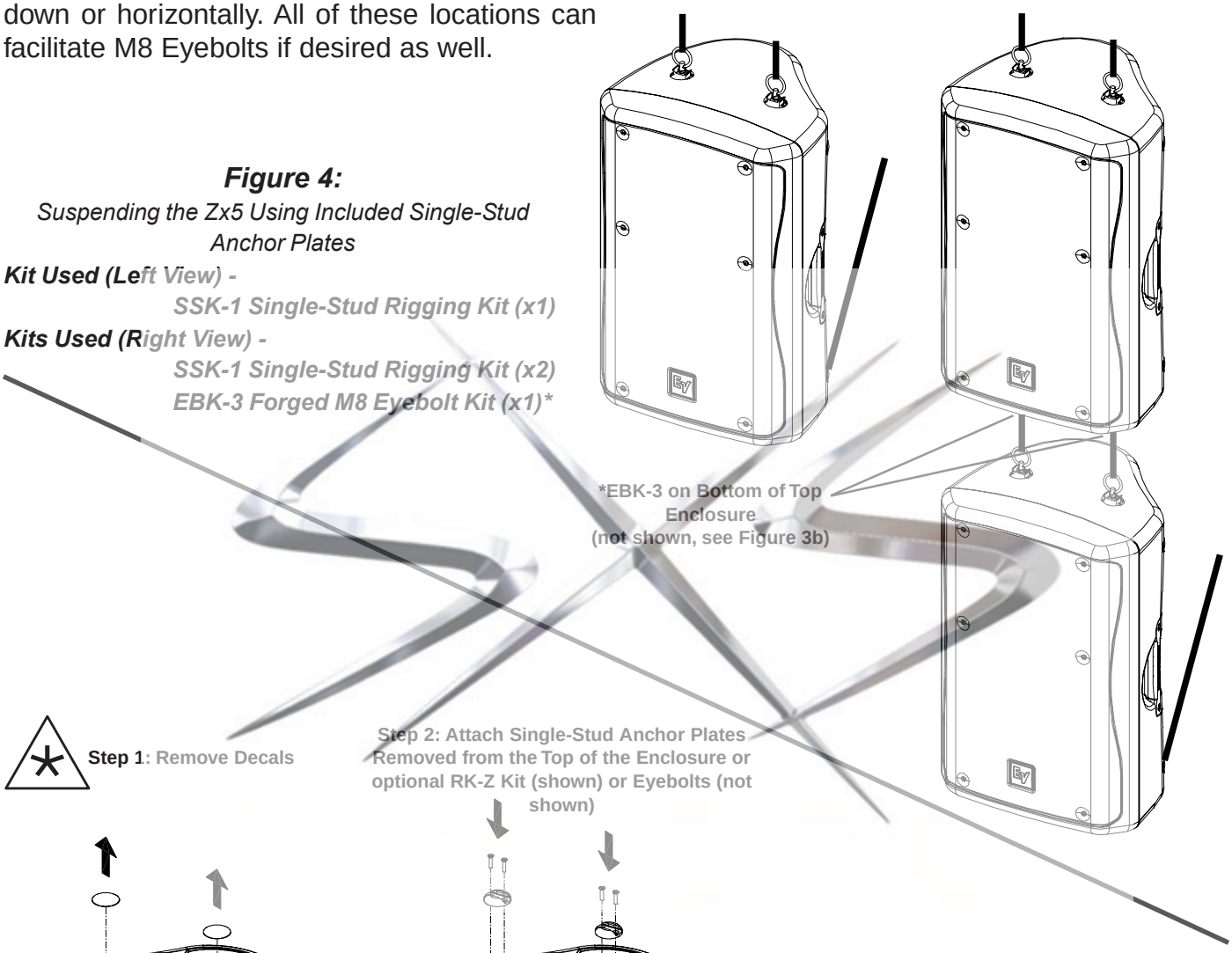

Figure 4:

Suspending the Zx5 Using Included Single-Stud Anchor Plates

Kit Used (Left View) -

SSK-1 Single-Stud Rigging Kit (x1)

Kits Used (Right View) -

SSK-1 Single-Stud Rigging Kit (x2)

EBK-3 Forged M8 Eyebolt Kit (x1)*

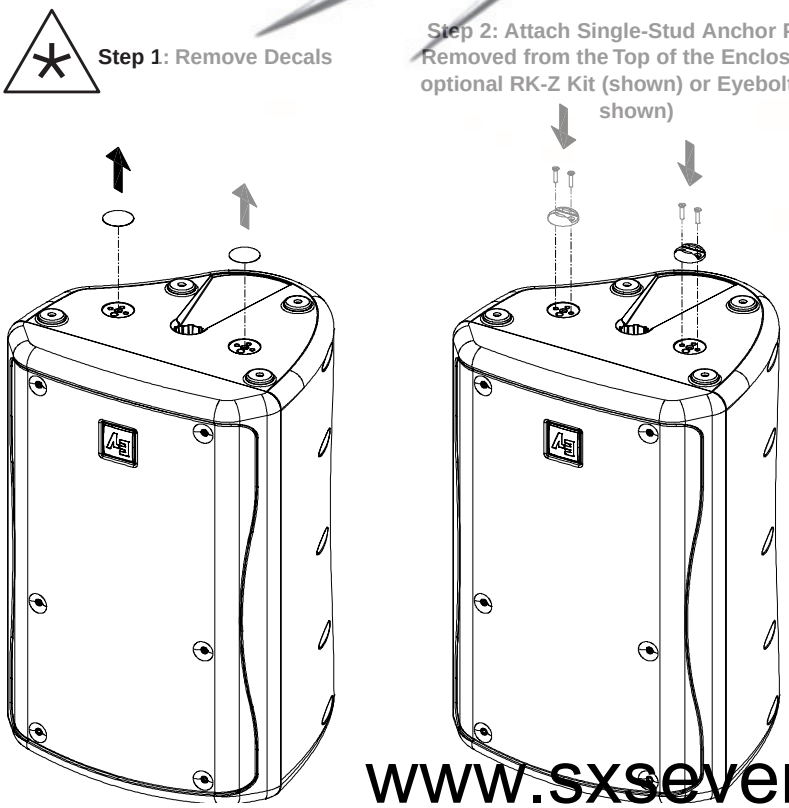
Step 1: Remove Decals
Step 2: Attach Single-Stud Anchor Plates Removed from the Top of the Enclosure or optional RK-Z Kit (shown) or Eyebolts (not shown)

Figure 5:

Suspending the Zx5 Upside-Down Using Included Single-Stud Anchor Plates and Single-Stud Rigging Kit

Kits Used -

RK-Z Single-Stud Anchor Plate Kit (x1)

SSK-1 Single-Stud Rigging Kit (x1)

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Horizontal Suspension of the Zx5

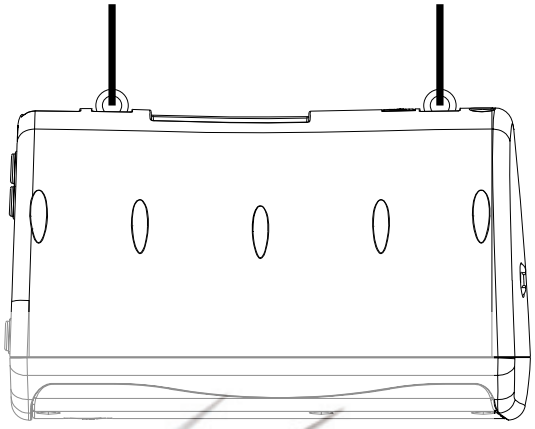
The Zx5 is capable of being suspended horizontally from the side (handle) or downward from the rear with the use of M8 Eyebolts.

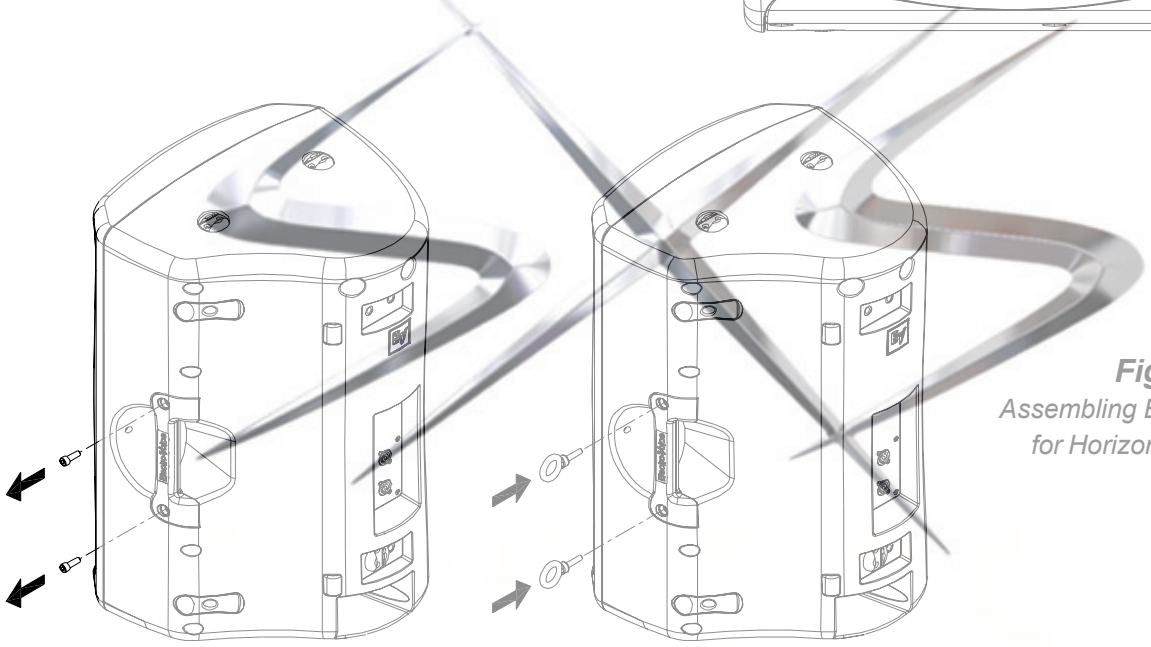
Figure 6:

*Suspending the Zx5 Downward from Rear Using Optional Forged Eyebolt Kit**

Kit Used - EBK-3 Forged M8 Eyebolt Kit (x1)

***Note - When suspending from the rear M8 suspension points, it is recommended that the (2) left M8 suspension points are used on the rear of the enclosure for best weight distribution in relation to enclosure's center of gravity.**





Step 1: Remove Handle Bolts

Step 2: Attach Eyebolts

Figure 7:

Assembling Eyebolts to Handle for Horizontal Suspension

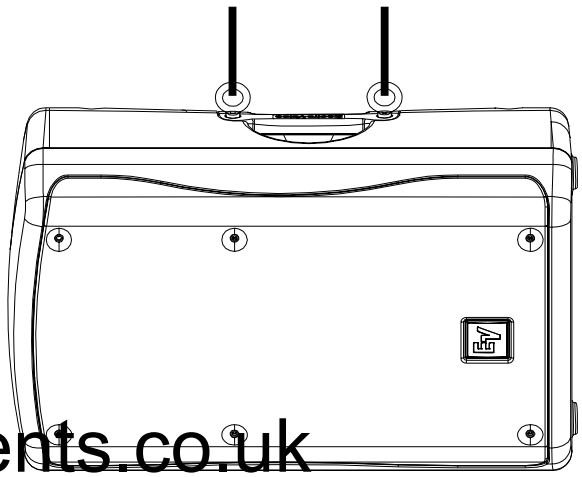


Figure 8:

Suspending the Zx5 Horizontally from Handle Using Optional Forged Eyebolt Kit

Kit Used - EBK-3 Forged M8 Eyebolt Kit (x1)

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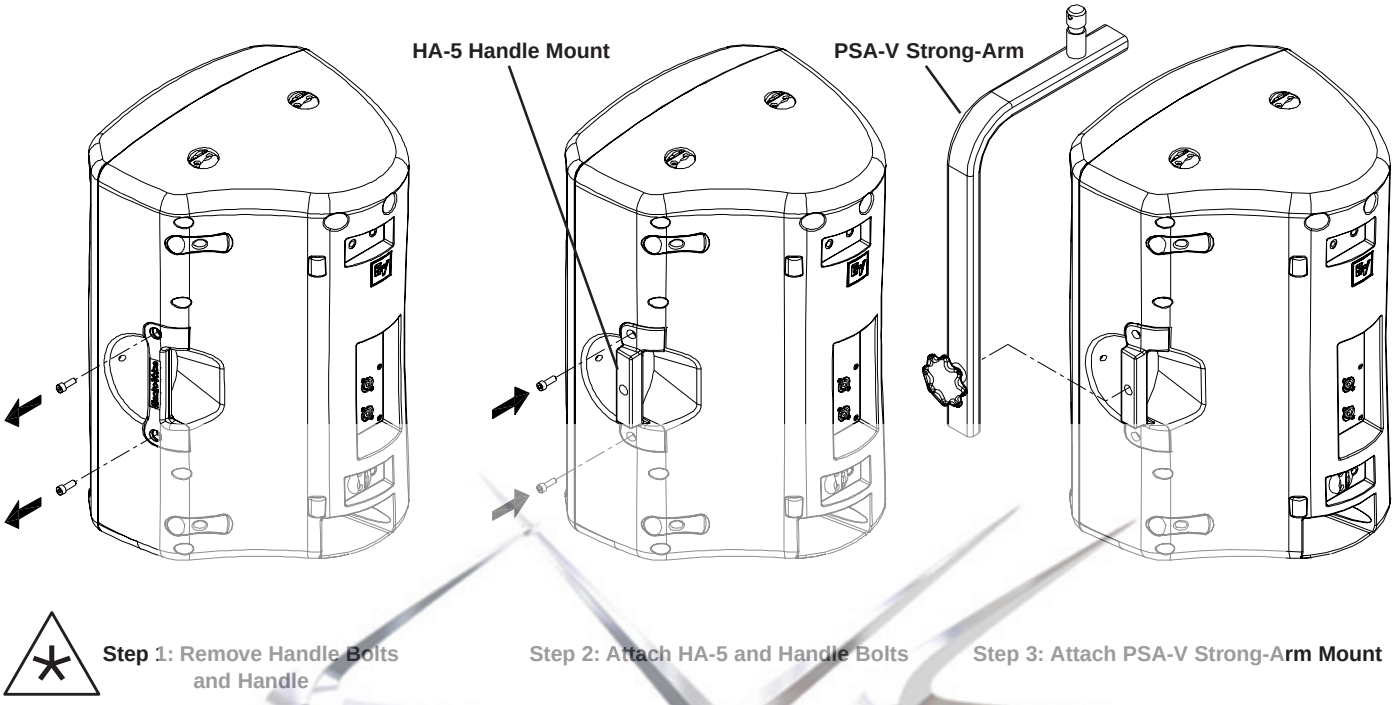
HA-5 Handle Mount
PSA-V Strong-Arm
Step 1: Remove Handle Bolts and Handle
Step 2: Attach HA-5 and Handle Bolts
Step 3: Attach PSA-V Strong-Arm Mount

Figure 9:

Assembling HA-5 Adapter for use with PSA-V Strong-Arm Mount

Kits Used -

HA-5 Handle Adapter Kit (x1)

PSA-V Strong-Arm Mount (x1)

Arraying and Suspending the Zx5 using optional Electro-Voice Mounting or Array Brackets

Figures 10 and 11 show several applications using EV mounting and array brackets. Carefully follow the instructions in this manual & the user manual packaged with EV brackets, and always use safe rigging practices when suspending Zx5.

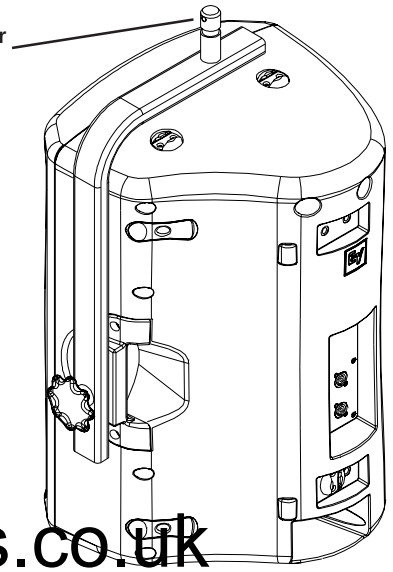

Figure 10:

Suspending the Zx5 Vertically from Handle Using Optional Handle Adapter and Strong-Arm Mount

Kits Used -

HA-5 Handle Adapter Kit (x1)

PSA-V Strong-Arm Mount (x1)

****Note - Please consult PSA-V User Manual for additional information.***

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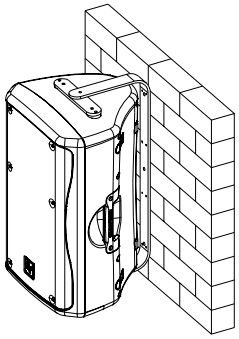
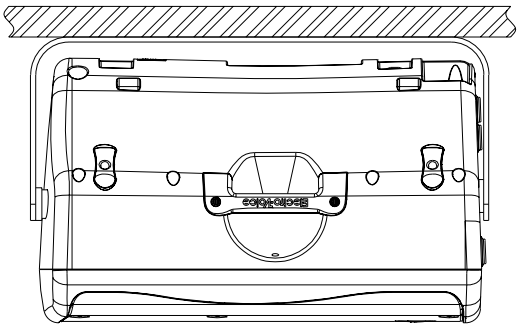
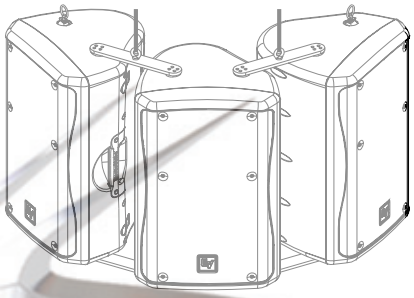


Kit Used - MB5 Wall/Ceiling Mounting Bracket (Wall Configuration)

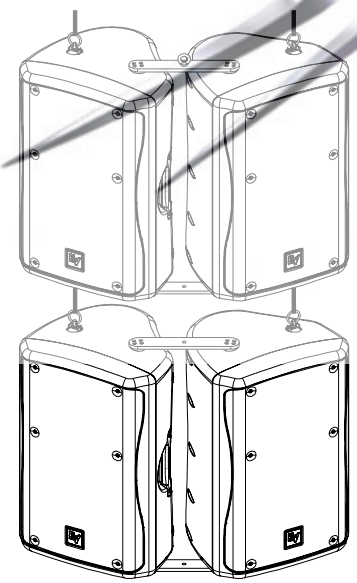


Kit Used - MB5 Wall/Ceiling Mounting Bracket (Ceiling Configuration)

Kits Used - CB5 Array Bracket Kit (x1)*
SSK-1 Single-Stud Rigging Kit (x1)

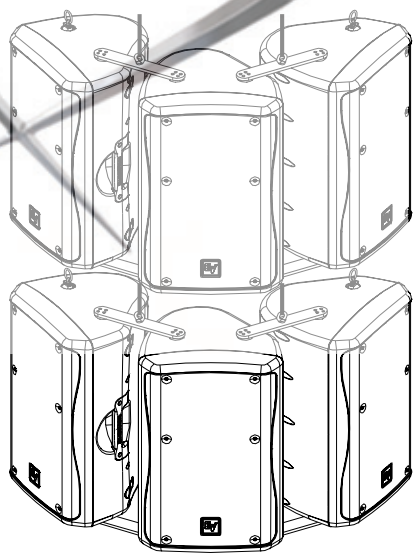


Kit Used - CB5 Array Bracket Kit (x2)*



Kits Used - CB5 Array Bracket Kit (x2)*
SSK-1 Single-Stud Rigging Kit (x2)
EBK-3 Forged M8 Eyebolt Kit (x1)

NOTE: Do not exceed working load limit for individual rigging points when arraying the Zx5. *(See Figure 2, Page 5)*



Kits Used - CB5 Array Bracket Kit (x4)*
EBK-3 Forged M8 Eyebolt Kit (x1)

****Note - CB5 Array Kits can be used for 60° or 90° Splay Angles***

Figure 11:
Arraying and Suspending the Zx5

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Zx5 Stage Monitor Positions

Zx5 as a Monitor

By design the Zx5 is a perfect solution for stage monitors. As different stage sizes require different monitor angles, the Zx5 offers two angles without any additional accessories.

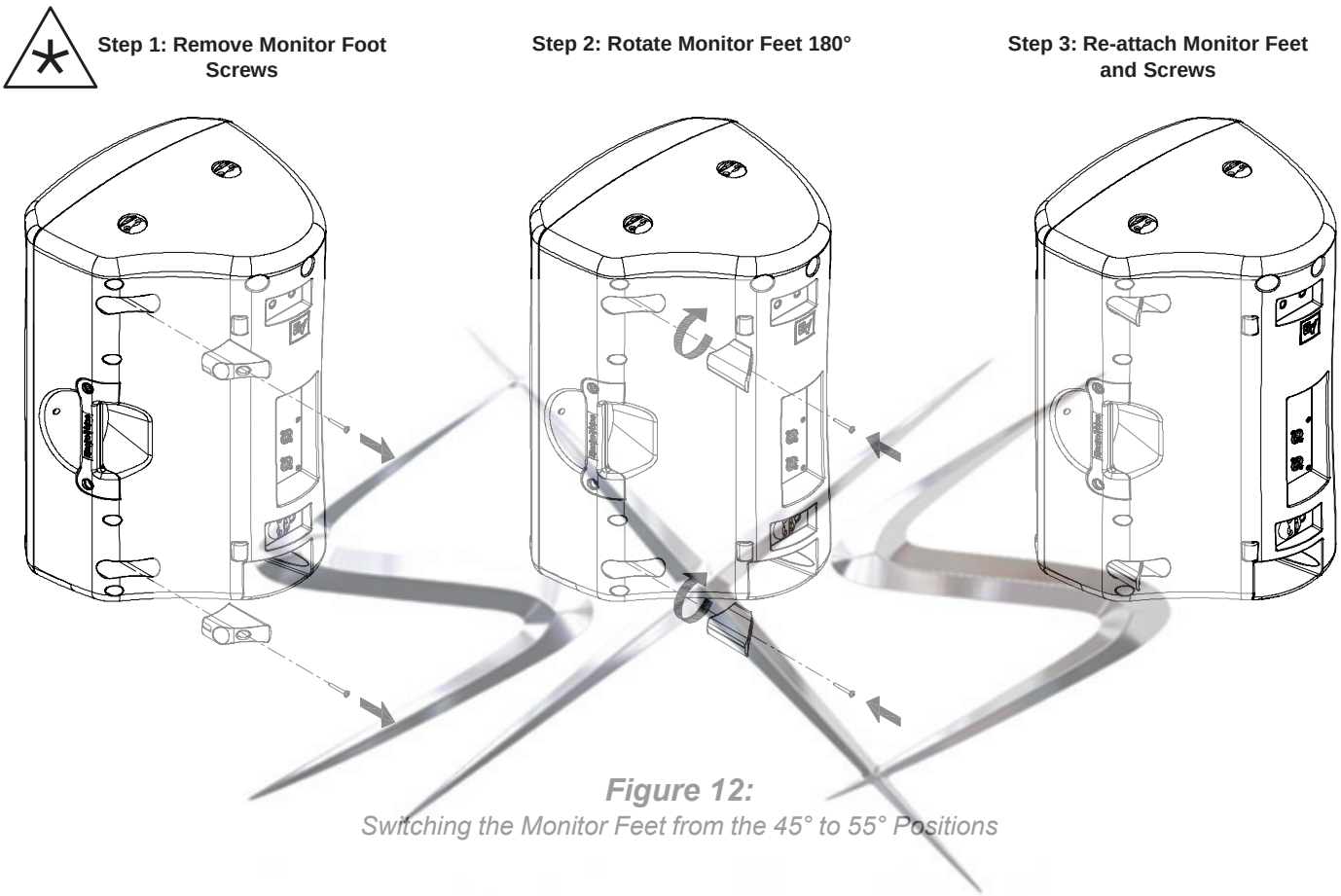

Figure 12:
Switching the Monitor Feet from the 45° to 55° Positions

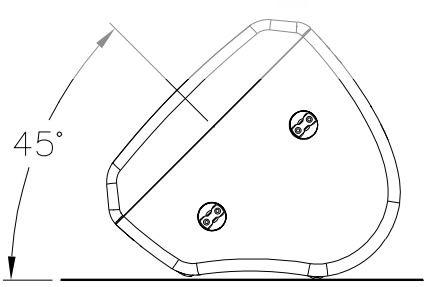

Figure 13a:
Zx5 as Monitor in 45° Position

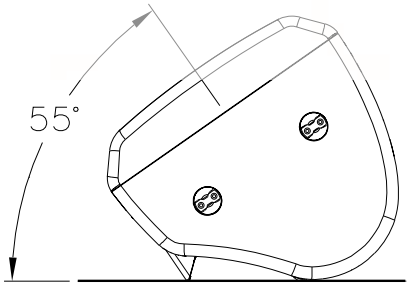

Figure 13b:
Zx5 as Monitor in 55° Position

CAUTION: When flipped to 55° the feet protrude from the enclosure. Care should be taken when moving the enclosure, since damage to the feet or enclosure might occur if the system is dropped or slid across a rough surface. It is recommended that the feet be returned to the 45° position for transport.

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Freq. Response[1] (-3 dB):	58 Hz - 18 kHz
Freq. Range[1] (-10 dB):	39 Hz - 20 kHz
Rec. Hipass Frequency:	36 Hz
Axial Sensitivity:	98 dB (1W/1m)
Max Calculated SPL:	132 dB
Horizontal Coverage:	90° or 60°
Vertical Coverage:	50° or 60°
Rated System Power:	600W Continuous, 2400W Peak
LF Power Handling:	500W Continuous, 2000W Peak
HF Power Handling:	40W Continuous, 160W Peak
LF Transducer:	DVX3150, 15in (300mm) Driver
HF Transducer:	ND2, 1in. (25.4mm) exit Neodymium Compression Driver
Crossover Frequency:	1.5 kHz
Nominal Impedance:	8 Ohms
Minimum Impedance:	6.5 Ohms
Connectors:	Neutrik Speakon NL4 Glandnut SJO Cable (PI Versions Only)
Enclosure Material:	Polypropylene Structural Foam
Suspension:	Enclosure has locations for 5 Single-Stud Attatchment Plates and 10 Forged Steel Eyebolts - 2 on Top, 2 on Bottom, 2 on Side, and 4 on Rear of Enclosure
Grille:	Polyester Powder Coated, 16GA Galvanized Steel
Environmental Spec:	IEC 529 IP24 / IP44 (PI Version)
Dim (H x W x D):	27.26" x 17.57" x 16.16" (692mm x 446mm x 411mm)
Net Weight:	49 lbs (22.2 kg)
Shipping Weight:	57.4 lbs (26.0 kg)

[1] Half Space measurement.

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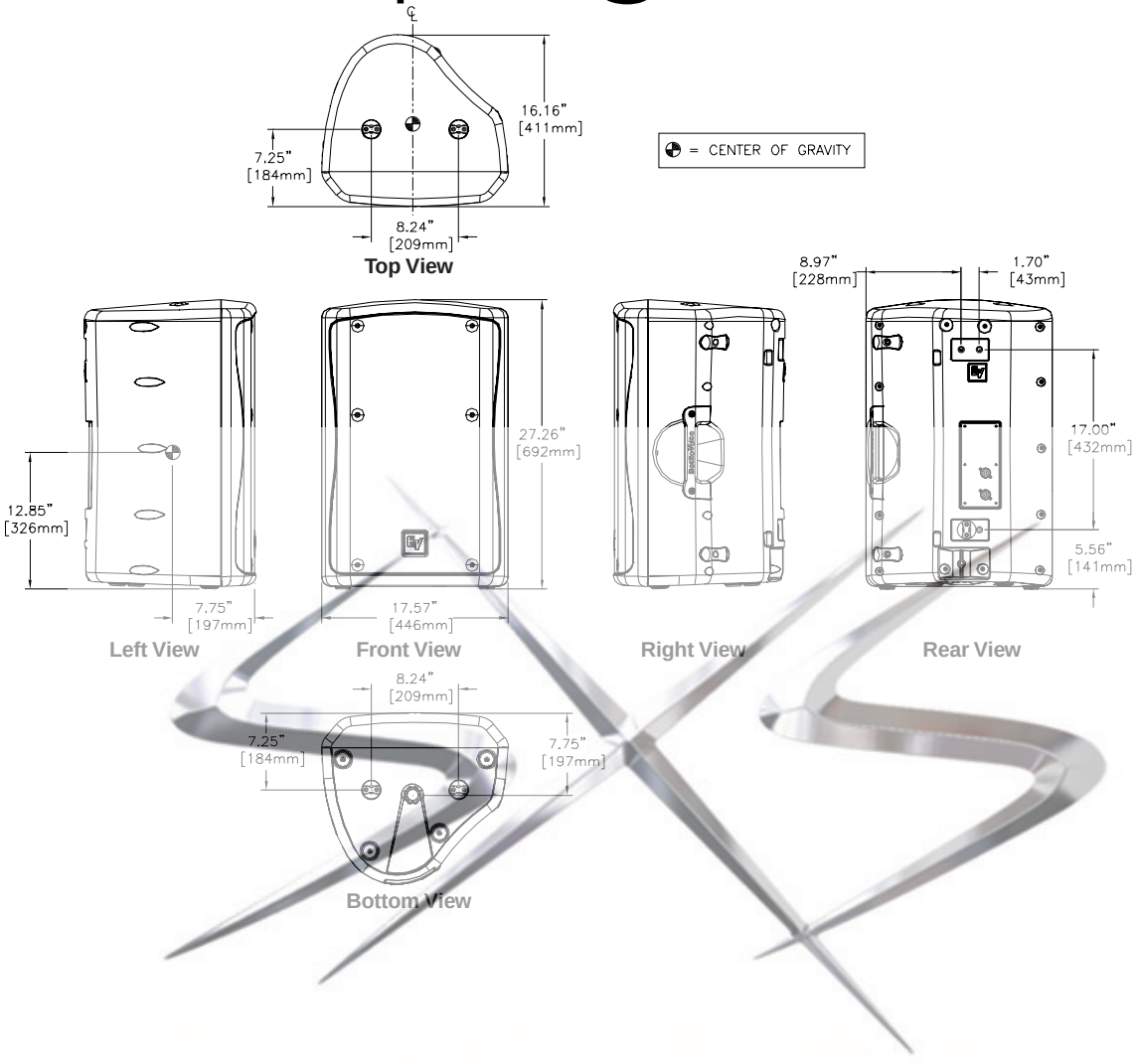
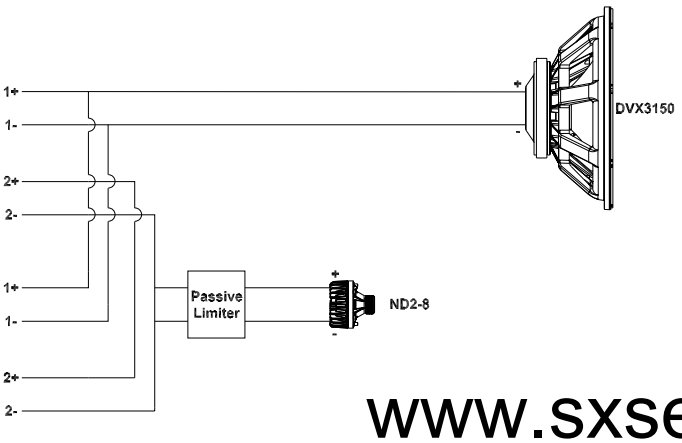
Dimensions

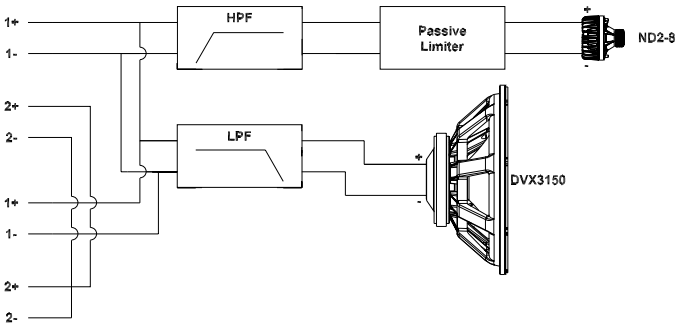


Block Diagram

Biamp:



Passive:



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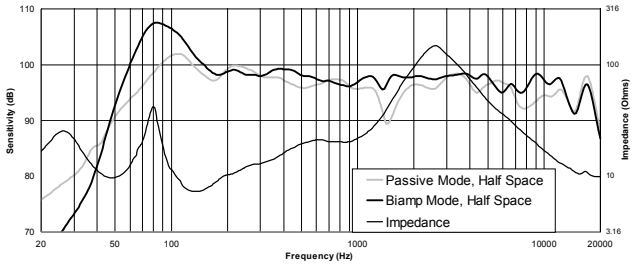
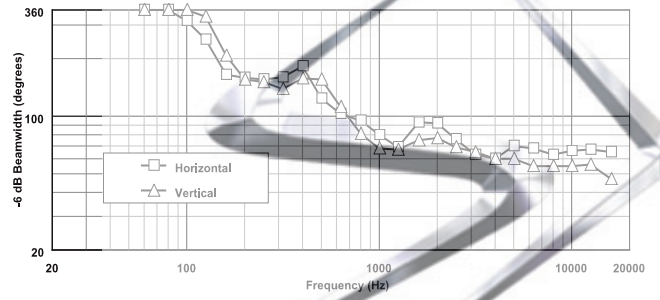
Frequency Response, Beamwidth, and Directivity

Zx5-60, 60° x 60° Coverage

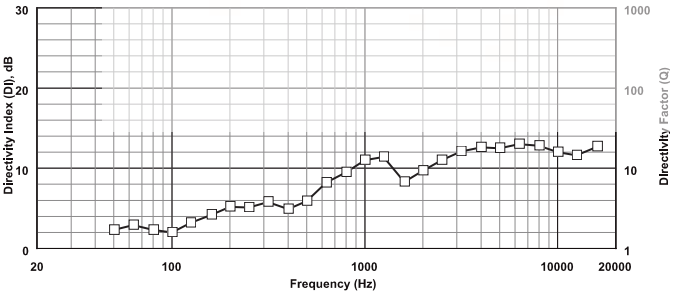
Frequency Response & Impedance:



Beamwidth:

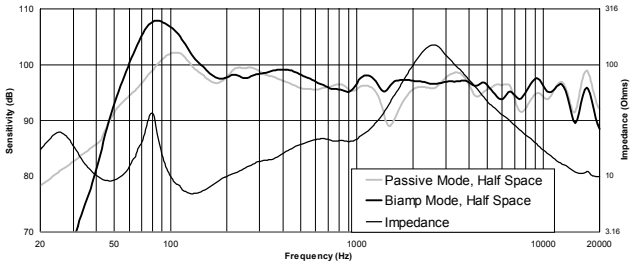


Directivity:

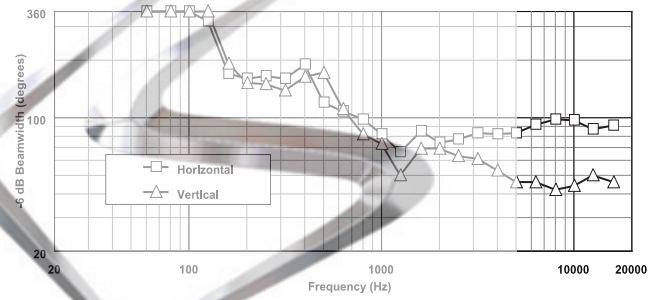


Zx5-90, 90° x 50° Coverage

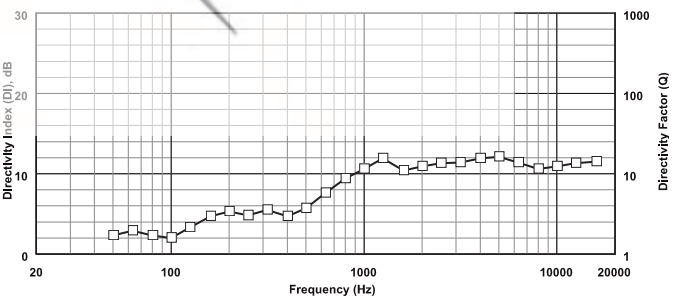
Frequency Response & Impedance:



Beamwidth:



Directivity:



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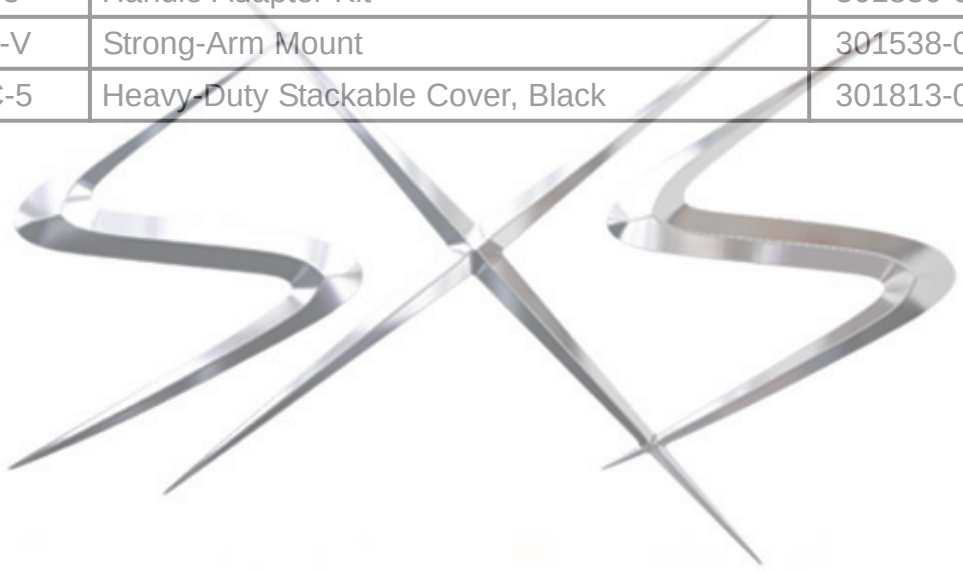
Model	Description	Part No.
CB5-B	Array Bracket Kit, Black Finish	301625-001
CB5-W	Array Bracket Kit, White Finish	301625-002
MB5-B	Wall/Ceiling Mounting Bracket Kit, Black Finish	301626-001
MB5-W	Wall/Ceiling Mounting Bracket Kit, White Finish	301626-002
SSK-1	Single-Stud Rigging Kit (Set of 3)	301633-000
EBK-3	Forged M8 Eyebolt Kit (Set of 3)	301634-000
RK-Z	Single-Stud Anchor Plate Kit (Set of 3)	301812-000
HA-5	Handle Adapter Kit	301830-001
PSA-V	Strong-Arm Mount	301538-001
HDC-5	Heavy-Duty Stackable Cover, Black	301813-001



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Painting a Zx5 Enclosure

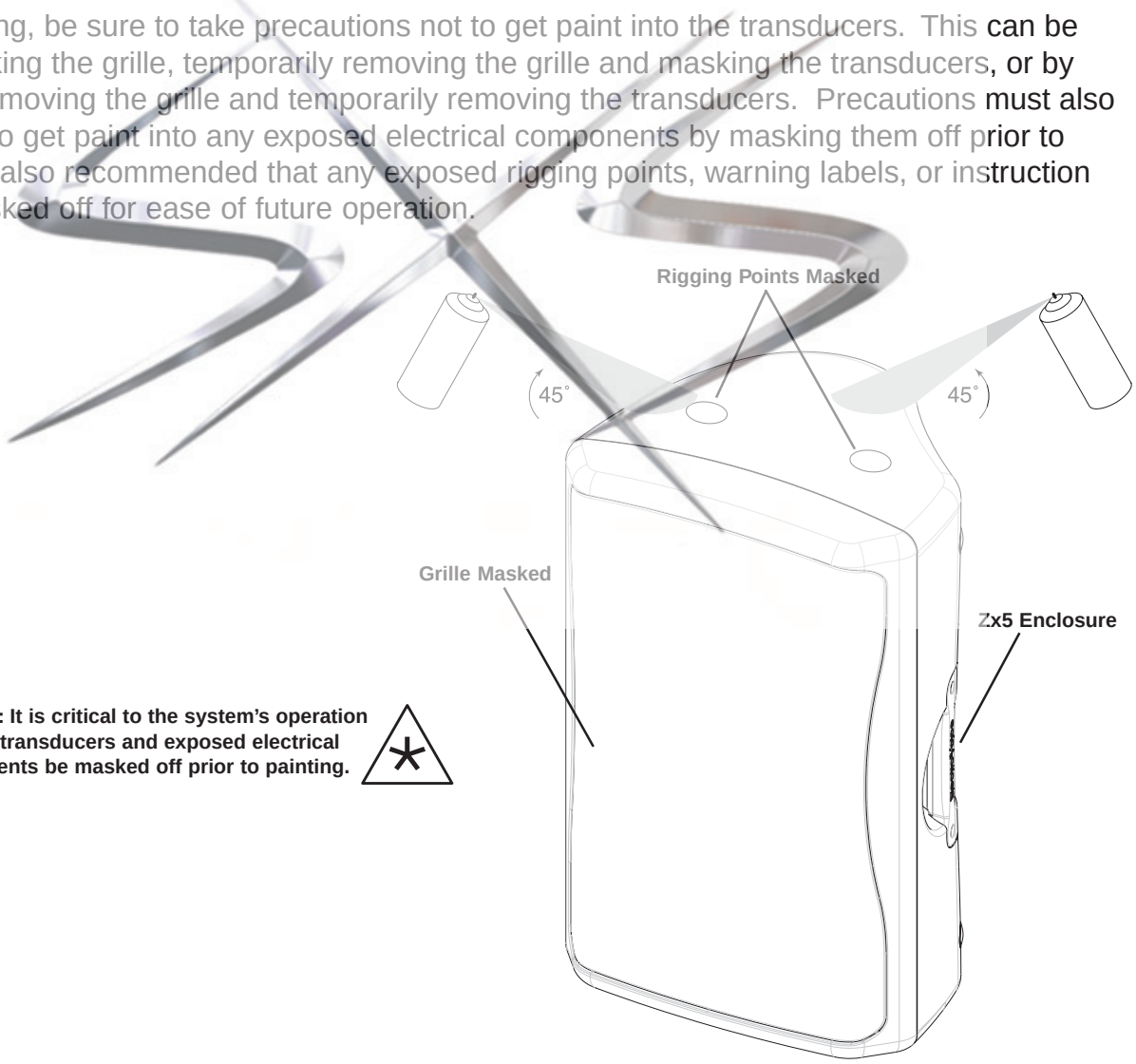
The Zx5 Loudspeaker Enclosures are made of a high performance Polypropylene material. For best paint adhesion, we recommend a “Plastic Adhesion Promoter” be applied before any paint. Sherwin Williams Plastic Adhesion Promoter UP07226 is a good example (See Telex document number LIT000066-000 for further details.) Once Plastic Adhesion Promoter is applied follow the manufacturer’s painting directions as you would normally.

Painting a Zx5 Grille

Remove grille from loudspeaker and remove the backing material & logo from grille prior to painting. Once the paint is dry, reapply the backing material and logo to the grille. Spray adhesive such as 3M Super 77 may help adhere the backing material to the grille.

Additional Precautions to be Taken

Prior to painting, be sure to take precautions not to get paint into the transducers. This can be done by masking the grille, temporarily removing the grille and masking the transducers, or by temporarily removing the grille and temporarily removing the transducers. Precautions must also be taken not to get paint into any exposed electrical components by masking them off prior to painting. It is also recommended that any exposed rigging points, warning labels, or instruction labels be masked off for ease of future operation.



WARNING: It is critical to the system’s operation that all transducers and exposed electrical components be masked off prior to painting.

Painting View:
Painting the Zx5 Enclosure

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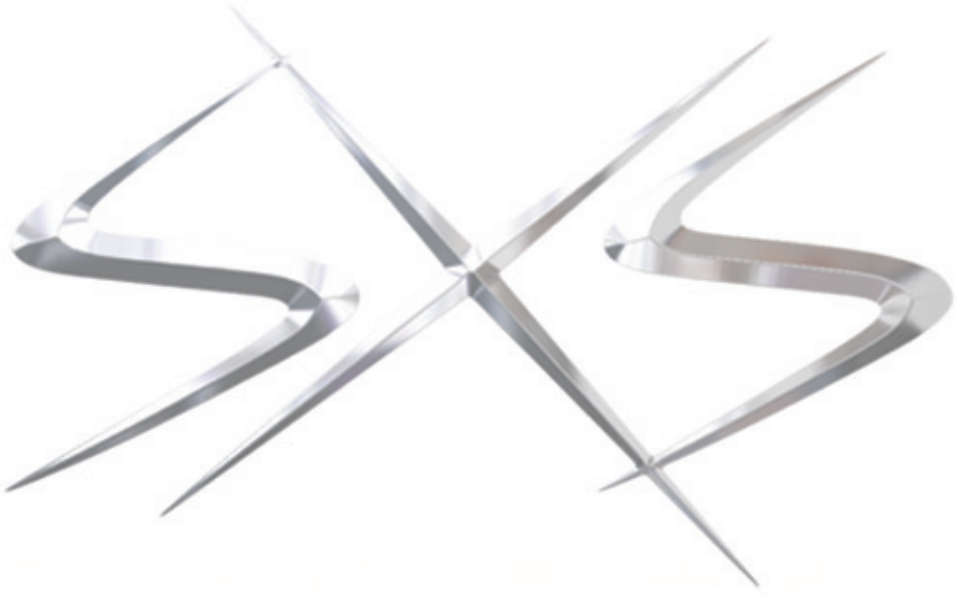

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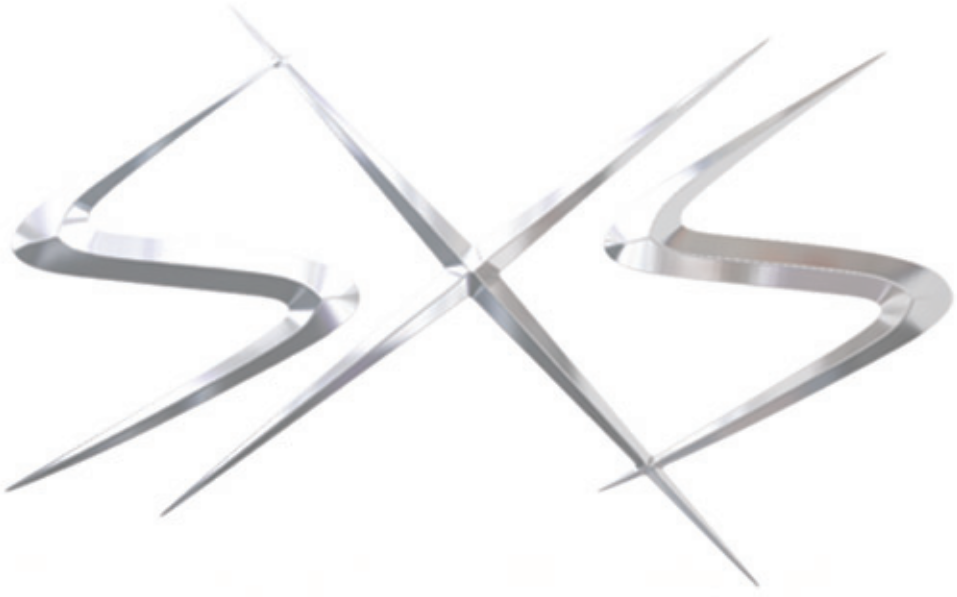
Notes



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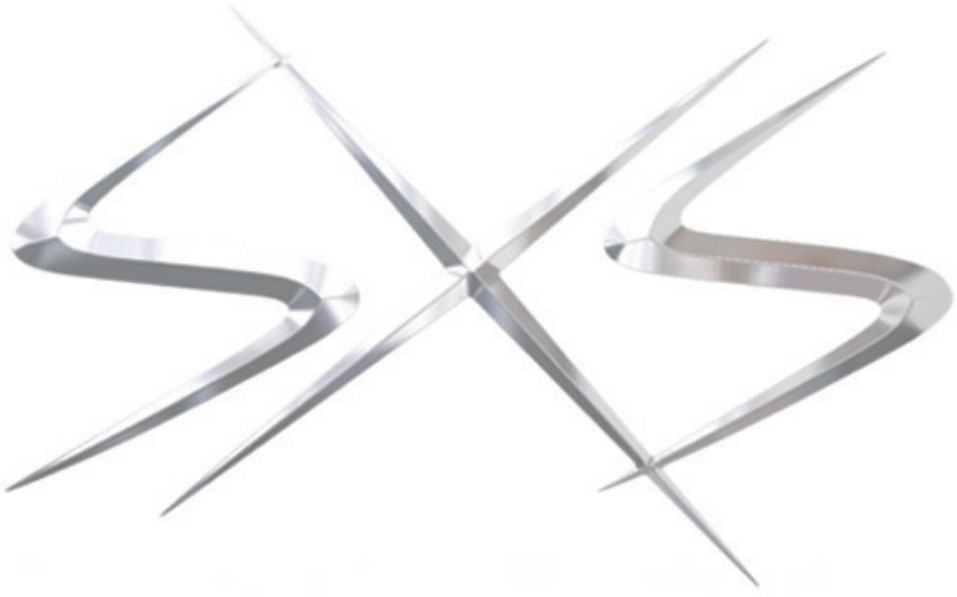

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